NASA Aeronautics Support Team (NAST) Obama Transition Meeting - Overview

Background: The NASA Aeronautics Support Team (NAST) is a not for profit advocacy organization based in Virginia that lobbies for advanced aeronautics R&D and supports the NASA Langley Research Center. Langley's historical expertise is in aeronautics research and development and earth sciences research. Given the priorities of the incoming Administration to place great emphasis on energy independence and an aggressive program for climate change monitoring, NASA Langley is an excellent R&D facility to help successfully implement this new agenda and Aeronautics and Earth Sciences both look to be important players in NASA based efforts to help reduce global warming.

Opportunities and Challenges Facing NASA:

1. Lack of Innovation at NASA that Benefits US Competitiveness: In recent years, a new exploration vision has been launched, but it requires little innovation and the technologies being developed for Moon/Mars exploration have little "dual use", and the science missions that have generated the most new knowledge and innovation within NASA have declined due to budget cuts. In the process the internal capacity of the agency to innovate has seriously eroded. It is time to reawaken NASA's spirit of innovation in aerospace before it is no longer possible. In so doing, NASA will once again become a vital contributor to our national capacity to innovate, the only sure way to maintain our global economic and military leadership in a world economy rapidly evolving into innovation and knowledge driven economy. By taking on "Grand Innovation Challenges" such as next generation Earth Science technologies, "green" aircraft and reinventing the air traffic control system, long and short term economic benefits will flow back to the taxpayers.

2. Oversized Impact of Airplane Emissions on Global Warming: Aircraft emit huge amounts of carbon dioxide. In fact, they currently account for 12 percent of carbon dioxide emissions from U.S. transportation sources and three percent of the United States' total carbon dioxide emissions. The United States is responsible for nearly half of worldwide carbon dioxide emissions from aircraft. NASA Aeronautics Centers have expertise in modeling, structural materials, propulsion and advanced configurations such as the blended wing-body aircraft. NASA should also reinvigorate past research into alternative energy sources for aviation propulsion such as batteries and fuel cells, as well as new sources such as biofuels, with the goal defining future clean fuel sources for aviation. Such technologies are forward looking and would be employed on a next generation of commercial aircraft, not existing planes. There is a great deal of existing research that has already been done, if improved budgets are provided going forward, significant progress in some areas could be made right away by aggressively resurrecting past efforts. NASA's Aeronautics budget has been gutted to the point that "basic" or "fundamental" research is mostly all that is left. This means undertaking studies, modeling and odd jobs – not actually aggressively pushing the limits and testing advanced flight and aircraft concepts. The emphasis of the entire program must shift back to actually doing things relevant to the US aircraft manufacturing base. NASA should be directed to enhance its aeronautics research and development budget so that the program achieves the higher levels of technology readiness required by industry for adoption in future aircraft.

3. Restore Funding to the Earth Science Program: The NASA Earth Science Program budget has been reduced to 50% of the level in the Clinton Administration. At such a funding level it will be impossible to implement to program and missions recommended by the National Academy of Science Decadal Study for climate change research. Restoration of the Earth Science budget with the goal of full implementation of the Decadal Study recommendations is imperative.

Recommendations for President-Elect Obama:

1. Restore funding to Science, Aeronautics and Earth Sciences to balance against overemphasis on human space flight and exploration.
2. Initiate a major new NASA aeronautics initiative to develop a "Green Aircraft" and name Langley the lead NASA Center in that effort.
3. Additional funds should be allocated to initiate construction of the next generation of earth observing satellites recently recommended by the National Academy of Sciences' 10-year plan for next generation climate change research.
4. Instruct NASA that its Aeronautics program will return to conducting research and development above Technological Readiness Level 3 – doing only basic research going forward will not provide the nation with innovative solutions to air traffic control modernization, aircraft safety and green aircraft needs.